structural virologist at the University of Texas, Austin, whose project to develop broad-spectrum treatments that work against several types of virus was part of the programme and terminated on 24 March. "To cancel the entire grant because a small portion involved SARS-CoV-2 is going to be dangerous for future pandemic preparedness."

The NIH did not respond to *Nature*'s queries about the grant terminations or scientists' concerns about them. Its parent organization, the US Department of Health and Human Services (HHS), told *Nature* that "the COVID-19 pandemic is over, and HHS will no longer waste billions of taxpayer dollars responding to a non-existent pandemic that Americans moved on from years ago".

Updated guidance

The updated documents that *Nature* obtained were sent on 25 March to 'grants-management specialists' — NIH staff members who oversee the business side of awarding funding. This document includes COVID-19 on a list of "research activities that NIH no longer supports", in addition to research on China, DEI, "transgender issues" and vaccine hesitancy. The latest guidance also says that grants related to South Africa and climate change should be terminated.

The document also outlines a new category of research that should be terminated: any project on a list sent by the NIH director or the HHS, which is currently helmed by long-time anti-vaccine advocate Robert F. Kennedy Jr.

Such large-scale grant terminations are unprecedented; the agency typically cancels only a few dozen projects each year in response to serious concerns about research misconduct or fraud — and does so only as a last resort, after taking other actions such as suspension.

Grants-management specialists will be tasked with identifying and terminating projects, because the NIH's current leadership considers its scientific staff members too biased to make these determinations, says an NIH official who requested anonymity because they weren't authorized to speak to the press.

But some scientists fear that the guidance for NIH employees is too vague and that any research project associated with certain keywords could be on the chopping block without consideration of its merit. "They've been taking a chainsaw to grants and not a surgical laser," says Angela Rasmussen, a virologist at the University of Saskatchewan in Saskatoon, Canada, who studies SARS-CoV-2.

Long COVID

Under the new directive, it's unclear to what extent the NIH will continue to fund its $1.6-billion RECOVER initiative, which aims to find the root causes and treatments for long COVID. The Trump administration seems to be deprioritizing long COVID: the HHS will close its Office of Long COVID Research and Practice, which coordinates the US government's response to the disease, according to e-mail correspondence that *Nature* has obtained.

This is a "real slap in the face of the many patients struggling with the long-term health effects of COVID infections", says Jennifer Nuzzo, an epidemiologist and director of the Pandemic Center at Brown University in Providence, Rhode Island.

Kennedy has vowed to "make America healthy again", in part by overhauling US health agencies to focus on chronic diseases. This "wholesale crackdown" on COVID research is not in the spirit of the campaign, Nuzzo says. "We should be studying how infections cause some of the worst diseases that society endures," she says, adding that research has linked infection with a common herpesvirus called Epstein–Barr to the development of multiple sclerosis.

Akiko Iwasaki, an immunologist at Yale School of Medicine in New Haven, Connecticut, who studies immune responses in people with long COVID and other post-viral conditions, says: "If we don't figure this out now with this pandemic, I'm afraid we will be much less prepared for future pandemics."

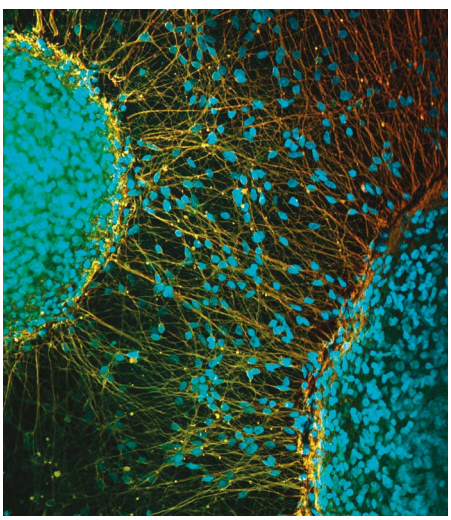
PARALYSED MAN STANDS AFTER RECEIVING STEM CELLS

Another man also regained some movement, but two others experienced minimal improvement.

By Smriti Mallapaty

A paralysed man can stand on his own after receiving an injection of neural stem cells to treat his spinal cord injury. The Japanese man was one of four individuals in a first-of-its-kind trial that used reprogrammed stem cells to treat people who are paralysed.

Another man can now move his arms and legs following the treatment, but the two others did not show substantial improvements. The trial was run by Hideyuki Okano, a stem-cell scientist at Keio University in Tokyo, and his colleagues.



IKELOS GMBH/DR. CHRISTOPHER B. JACKSON/SPL

Neural stem cells could reverse paralysis.

The results, which were announced at a press conference on 21 March and have not yet been peer reviewed, suggest that the treatment is safe, say researchers.

"That's a great positive outcome. It's very exciting for the field," says James St John, a translational neuroscientist at Griffith University in the Gold Coast, Australia.

Previous trials using other types of stem cell have also demonstrated that the therapy is safe, but have so far shown mixed results. "Nothing's really worked so far," says St John.

Larger trials will be needed to establish whether the improvements observed in the two individuals in the current study were a result of the treatment. It's possible the patients experienced a natural recovery, says St John.

In 2019, roughly 0.9 million people globally experienced a spinal cord injury, and some 20 million people were living with the condition (W. Ding *et al. Spine* **47**, 1532–1540; 2022).

Reprogrammed cells

Reprogrammed or induced pluripotent stem (iPS) cells are created by reverting adult cells to an embryonic-like state, from which they can be coaxed to develop into other cell types.

In this trial, iPS cells derived from a donor were used to create neural precursor cells. Two million of these were injected into each patient's injury site, in the hope that they would eventually develop into neurons and glial cells.

The trial's first surgery was performed in December 2021; the other three were conducted between 2022 and 2023. All

four recipients were adult males and two were aged 60 or older. They all had surgery between two and four weeks after the damage was done, says Okano. Recipients were given immune-suppressing drugs to prevent their bodies from attacking the cells for six months after the surgery.

The results are the latest in a series of small human trials testing the potential of iPS cells to regenerate tissue and treat disease.

Learning to walk

At the one-year follow-up, the researchers did not observe any serious adverse effects.

All individuals started the trial with the highest injury classification of A, as measured by the American Spinal Injury Association Impairment Scale (AIS). People with this level of impairment have no sensory or motor function below the point of injury. Two of the participants did not show improvements in their ability to feel or move in the lowest section of their spinal cord. One individual moved up to a classification of C in the period after surgery, and can move some of their arm and leg muscles but cannot stand on their own. Another individual improved to a level D (normal function is classified as E) and can stand independently. "That person is now training to walk," says Okano. "This is a dramatic recovery."

Preliminary analysis of the data suggests the treatment works, says Okano.

But the study was not designed to prove efficacy, which will need to be studied in larger trials, says St John. "Sometimes when people have spinal cord injury, they just naturally get recovery."

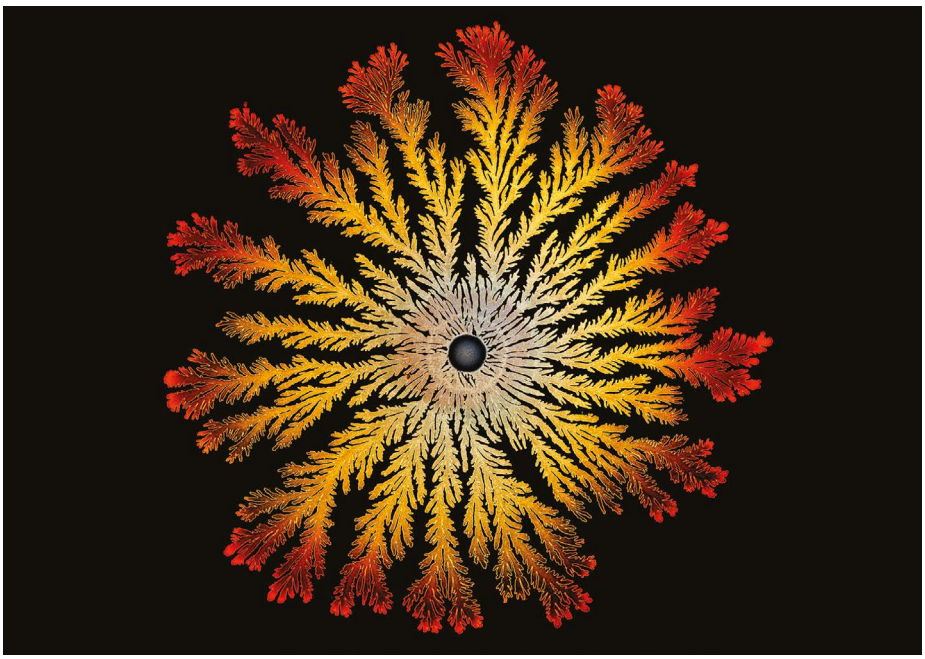
The researchers plan to submit their results for publication. A Tokyo-based biotechnology start-up called K Pharma, which Okano co-founded, plans to apply for approval to launch larger clinical trials.

Cell survival

Future trials will assess efficacy and which types of spinal cord injury respond to treatment. "Every spinal cord injury is different," says St John, who is leading a separate trial for spinal cord injury in which glial cells extracted from the nose are transplanted to the injury site.

Previous studies using cultured cells and animal models suggest that transplanted iPS cells secrete substances that support the function of existing spinal cells (A. Muheremu *et al. Transl. Neurosci.* **12**, 494–511; 2021). The transplanted cells also help to reconstruct the damaged site by building an insulating layer around neural extensions and forming direct connections with host neurons. But a key question is how many cells survive the surgery, says St John, because many float away or die within days.

Okano says imaging studies of his four iPS-cell recipients suggest some of the transplanted cells did survive.



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A species of *Paenibacillus* bacteria has potent antibacterial activity against some pathogens.

NEW ANTIBIOTIC DISCOVERED IN LAB TECHNICIAN'S GARDEN

The molecule targets bacteria in a way that other drugs don't.

By Smriti Mallapaty

Researchers have discovered a new antibiotic molecule that targets a broad range of disease-causing bacteria — even strains resistant to commercial drugs — and is not toxic to human cells (M. Jangra *et al. Nature* https://doi.org/g892kf; 2025).

The molecule was found in soil samples collected from a laboratory technician's garden. The discovery shows that "there is terrifically interesting stuff hiding in plain sight", says Kim Lewis, a microbiologist at Northeastern University in Boston, Massachusetts, who was not involved in the research. "Kudos to them that they knew what to look for."

The latest molecule targets bacteria's protein-making factory, the ribosome, in a way that other antibiotic drugs don't. The ribosome is an attractive antibiotic target because bacteria don't easily develop resistance to drugs targeting the structure, adds Lewis.

The search for new antibiotics is necessary because bacteria acquire resistance to existing drugs with continued use. In 2021, bacterial resistance to antimicrobial drugs was associated with 1.1 million deaths globally, a figure that could increase to 1.9 million by 2050.

"The antibiotic-resistance crisis is an existential threat to medicine," says Gerry Wright, a chemical biologist at McMaster University in Hamilton, Canada, and a co-author of the study, which was published in *Nature*.

Garden-variety bacteria

Wright and his colleagues set out to find microbes that have developed previously unknown tricks to kill pathogens. They collected soil samples in Petri dishes with growth medium and stored them for a year. The researchers then exposed the microbes from these samples to *Escherichia coli*, a common gut bacterium that can cause serious disease.

One sample showed potent antibacterial activity — by a species belonging to the genus *Paenibacillus*.

Further rounds of screening, genome sequencing and structural analysis revealed that the bacterium produces a molecule that belongs to a group of peptides that form a lasso-shaped knot. These peptides are known for being robust and can probably even survive being digested. "It's a nice, really compact and incredibly robust structure," says Wright.

The molecule, which the researchers named lariocidin, binds to the ribosome and also to